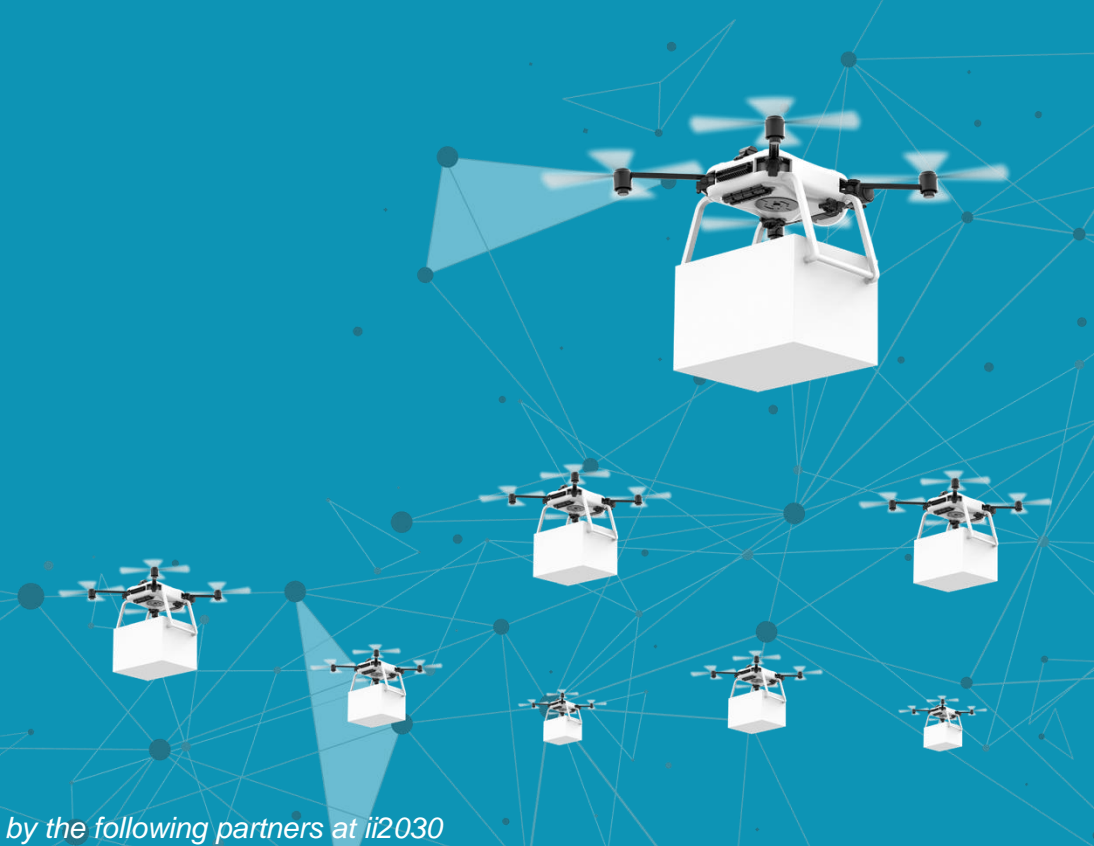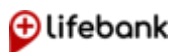CONCEPT NOTE

# WAKANDA BEYOND CHALLENGE

ii2030
#Africa4Future Edition

*This concept was co-created by the following partners at ii2030*

# The challenge

**Drones can be the game-changer that mobile telephony was for Africa over a decade ago**— this time providing physical connectivity. From delivering blood to collecting medical samples, surveying and more, drones have the potential to be an engine for growth and prosperity, supporting the Sustainable Development Goals (SDGs) and driving local innovation, manufacturing and job creation.

**Across the African continent and the world over, drone regulations have proven to be a critical enabler or inhibitor to the successful use of drones for good at scale**. The lack of fit-for-purpose regulations, particularly for Beyond Visual Line of Sight (BVLOS) flights, continues to be a challenge for this emerging industry to reach its full potential. In some cases, regulations may be too cumbersome to follow, too challenging to locate, too narrow in their focus, or simply non-existent. Of the 54 African states, 50% have no drone regulation, 25% have some and 10% have only guidance[1].

**Fit-for-purpose, context-specific, tech-enhanced regulations and approval processes are essential levers to support a government's safety oversight mandate and the operators' need for clear, transparent, automated, processes.** Technological solutions are emerging that have the potential to make it easier for regulators and operators to implement and abide by BVLOS regulations. Still, few have been developed for or tested in the African context. Applying existing solutions to the local context will not necessarily be enough. Instead, solutions require tailoring to local requirements, such as affordability or operability with available connectivity. They must involve local communities to ensure the technology maximizes impact and brings us closer to the world we want to live in.

# The solution

The Wakanda Beyond Challenge (WBC) seeks to accelerate the evolution of regionally aligned, fit-for-purpose drone regulations and regulatory approval processes that are collaboratively created and enhanced by technology

**Wakanda is a reference to the aspiration for the challenge to influence the development of new and future-fit regulations that go beyond what exists today** and enables Africa to become a world leader in smart, tech-enabled regulations for BVLOS operations. WBC will build a network of stakeholders to co-create, test and evaluate solutions that could bring safety improvements and operational efficiencies to influence BVLOS regulations and safer operations in the region. It is made up of three main components:

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[1] https://www.africandroneforum.org/regulations/

***The Network***: WBC will build on or create international and national networks including of regulators (Civil Aviation Authorities [CAA's] and Regional Safety Oversight Organisations [RSOO's] such as AFCAC[2] and CASSOA[3]), drone operators and technology providers. The networks will examine existing regulatory strengths and limitations in order to co-create tech-enhanced solutions that could enable safer and easier regulatory processes tailored to local requirements and contexts.

***The Challenge***: The solutions will then be put to the test in live challenges in the network's countries of operations. Regulators will work with technology providers, operators and communities within the network to demonstrate the technical feasibility of the solutions. The solutions will be tested on two levels, first in drone corridors or low-risk locations and then as part of ongoing operations throughout the focus countries. Illustrative examples of solutions may include processes and mechanisms for automated flight approvals, low-cost connectivity solutions, online oversight of live drone operations or cross-border flights.

***The Guidance Notes Series***: Once the solutions have been tested, they will be evaluated by the network on key criteria including safety benefits, easier operations, cost-effectiveness and community perceptions. The best ones will receive a quality approval. The Network will collectively publish a Wakanda Beyond Guidance Note Series, which will highlight the findings from the challenges. These notes will explain the solution, how it works, its cost implications, requirements, benefits, trade-offs and impact on regulations and regulatory processes. In addition, a generalized note with learnings from unsuccessful solutions will also be published per challenge. This note will provide helpful earnings to guide further improvements.
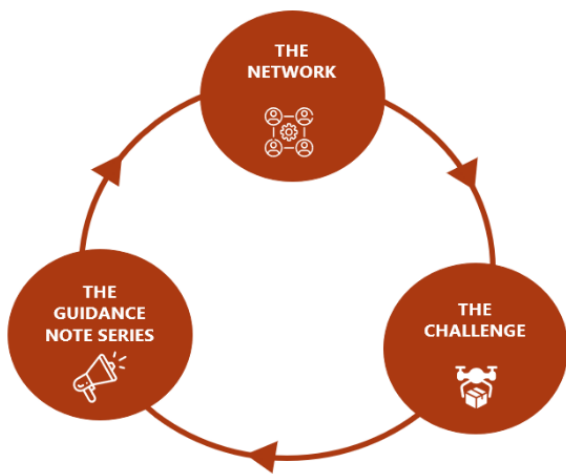


*Figure 1: Overview of the WBC end-to-end process*

The end-to-end WBC process is designed to facilitate knowledge exchange and peer-learning opportunities between the CAA's and RSOO's in the network to work towards influencing aligned and inter-operable regulations across the region. The documentation and dissemination of the WBC process will support change through:

- demonstrations of the best approaches for integrating the solutions in the regulatory process and flight operations;
- guidance on how solutions can influence smarter and safer BVLOS policy; and
- exchange on how nation-states can collaborate and work together to influence regional drone policy alignment.

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[2]  African Civil Aviation Commission www.afcac.org

[3] Civil Aviation Safety and Security Oversight Agency, the Regional Safety and Oversight Organisation for East Africa www.cassoa.org

Through this approach, the WBC aims to:

→ **Go Beyond What Exists Today**
Test and evaluate solutions that could contribute to safer BVLOS operations that draw on the successes and shortcomings seen in regulations worldwide and offer context-tailored solutions.

→ **Support the Alignment of BVLOS Regulations**
Foster regulatory alignment and peer-capacity building within the African drone ecosystem through the network's solution co-creation, challenge implementation and evaluation.

→ **Built to last**
Co-create solutions with the government from the start to increase adoption and have a sustained impact at scale.

# How it will work

The WBC is about the aspiration to encourage the development of new and future-fit solutions that are adapted to the African context as opposed to merely applying existing solutions. It will achieve this through a four-step process, as illustrated below.

| 1 | 2 | 3 | 4 |
|---|---|---|---|
| **BUILD THE NETWORK & SELECT LOCATIONS** | **CHALLENGE DESIGN** | **CHALLENGE IMPLEMENTATION** | **EVALUATE, DOCUMENT & DISSEMINATE WBC NOTES** |

**Activities:**

Recruit participant countries, build national and international networks and conduct necessary assessments

**Activities:**

Co-create contextualized challenges and identify technology solutions

**Activities:**

Select the most suitable locations and conduct two-steps testing

**Activities:**

Develop briefing notes and embed results in existing regulations and regulatory processes.

**Expected outcome:**

Regional drone regulators and operators are connected via national and international peer-learning networks to facilitate regional alignment

**Expected outcome:**

Challenges are designed to test, develop and approve African-driven need-based solutions to make Africa the safest place to fly drones easily

**Expected outcome:**

Technical feasibility of solutions is demonstrated

**Expected outcome:**

Best solutions to ensure drone safety and enabling smart

## Community Engagement through "Community Drone Representative" (CDR)

Critically, the WBC will be developed in a way that meaningfully engages local communities through participatory engagement and representation.

When locations for challenges are selected, neighboring communities will select a "community drone representative" (CDR) as a link between the community and the WBC. The CDRs will hold seats on the local WBC committees to represent their communities interest and preferences during the WBC process. CDRs will be trained on community engagement practices and actively seek their communities input through a variety of methods throughout the WBC process. Thus, the society can contribute to and help shape the drone ecosystem to ensure confidence in drone technology while bringing maximum benefit to them. CDRs will also be trained on emergency response protocols in case of an adverse incident during the challenge implementation.
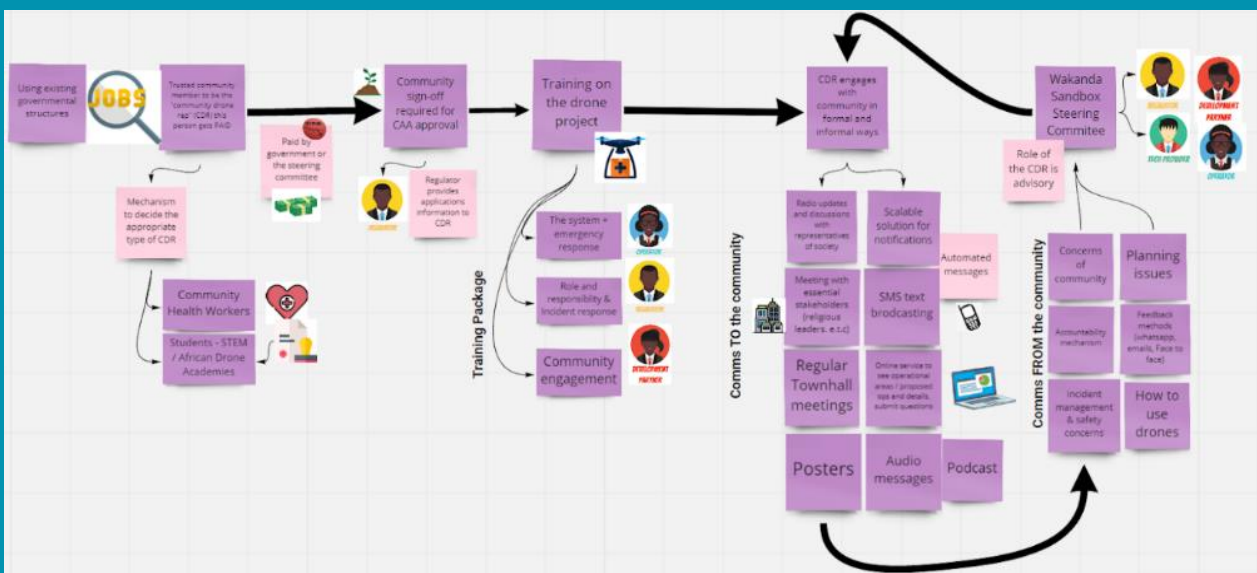


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## POTENTIAL LOCATIONS

The WBC sets its ambitions at the continental level with the goal to expand into other regions. Conducting activities in several selected locations will foster the potential for knowledge exchange between countries and establish a community of practice within the continent.

Eligibility criteria for location selection are the following:

- Letter of support from higher-level government with jurisdiction in unmanned operations
- Introduction to local drone ecosystem stakeholders (e.g. operators, telecommunications regulator)
- Provision of dedicated funding or support for funding raising endeavour
- Availability of existing drone operators to participate in challenges

### KENYA

- Population size: 47.5 million



- Geography/Topography: Low plains on the Indian Ocean cost rise to the central highlands which houses the second-highest peak on the continent - Mt. Kenya, 5199 m.

### MALAWI

- Population size: 18.14 million



- Geography/Topography: Low-lying areas to the south, highlands in the north and Lake Malawi on the eastern border which is over 500 km in length. Low-lying districts are often facing flooding, rendering many parts of the country inaccessible by road during parts of the year.

### ETHIOPIA

- Population size: 110 million



- Geography/Topography: high central plateau ranging from 1,290 to 3,000 m above sea level, with the highest mountain reaching 4,533 m

## WORKING IN PARTNERSHIP

| TEAM | ROLES | RESPONSIBILITIES |
|---|---|---|
| **Project management support** <br><br> AFRICAN DRONE FORUM · endeva · UPDWG *(dissemination support)* | Oversee project from set up to completion and ensure impact beyond the scope of the project | • Recruit network participants <br> • Coordinate international and national WBC networks <br> • Contribute to designing of the two-level tests and evaluation criteria <br> • Coordinate workshops for challenge and solution selection <br> • Develop documentation and dissemination material |
| **Project tech support** <br><br> AFRICAN DRONE FORUM · HP · unicef | Risk assessment and technical analysis | • Conduct risk assessment <br> • Assess necessary technical upgrades in selected locations <br> • Contribute to designing of the two-level tests and evaluation criteria <br> • Review testing results |
| **Regulations** | Analyze regulations and facilitate the adoption of solutions | • Identify existing regulations for selected countries <br> • Oversee the safety risk assessment <br> • Support the selection of challenges <br> • Tie the challenges to procurement processes |
| **Operations** <br><br> MICROMEK · lifebank · Swoop Aero | Test the created solutions | • Participate in challenges <br> • Conduct operations for the second testing phase <br> • Provide feedback |
| **Tech Providers** <br><br> APS · ukowapi · IDRONECT | Respond to challenges in partnership with local actors | • Respond to challenges <br> • Adapt technology <br> • Work with local partners to co-create tailored solutions |
| **Community engagement** <br><br> VILLAGE REACH · unicef | Set up process and protocols to engage the ecosystem | • Overseeing the creation of the Steering Committee <br> • Develop mechanisms for community engagement through CDRs |